Amendments to the Claims

The listing of claims will replace all prior version, and listings, of claims in the application.

Listing of Claims

Claim 1 (Currently Amended)

A heat sink device used for ball grid array package device with modified embedded heat slug, ~~said heat sink device used for said ball grid array package with said modified embedded heat slug comprises~~ comprising:

a first ~~part of~~ heat sink assembly~~, said first part of heat sink assembly~~ having a first heat dissipating ~~element~~ structure, and a second heat dissipating ~~element~~ structure located below on said first heat dissipating ~~element~~ structure[[,]];

a printed circuit board having a ~~flip chip~~ ball grid array package device thereon, said ball grid array package device having an embedded heat slug with a cavity thereon; and

a second ~~part of~~ heat sink assembly~~, said second part of heat sink assembly~~ having a protruding [[part]] structure in the ~~central~~ center of said second ~~part of~~ heat sink assembly and at least two ~~opening~~ through holes on the two sides of said second ~~part of~~ heat sink assembly, wherein said first ~~part of~~ heat sink assembly [[is]] located above said ~~flip chip~~ ball grid array package device of said printed circuit board, and said second ~~part of~~ heat sink assembly [[is]] located below said ~~flip chip~~ ball grid array package device of ~~the~~ said printed circuit board.

Claim 2 (Currently amended)

The heat sink device used for ~~said~~ ball grid array package device with ~~said~~ modified embedded heat slug according to Claim 1, wherein said first heat dissipating ~~element~~ structure is made by casting.

Claim 3 (Currently Amended)

The heat sink device used for ~~said~~ ball grid array package device with ~~said~~ modified embedded heat slug according to Claim 1, wherein said second heat dissipating ~~element~~ structure is a heat [[-]] dissipating fin.

Claim 4 (Currently Amended)

The heat sink device used for ~~said~~ ball grid array package device with said modified embedded heat slug according to Claim 1, wherein a conductive protruding block on the backside of said first heat dissipating ~~element~~ structure.

Claim 5 (Currently Amended)

The heat sink device used for ~~said~~ ball grid array package device with ~~said~~ modified embedded heat slug according to Claim 1, wherein a thermal conductive adhesive tape being located on [[the]]

said backside of said first heat dissipating ~~element~~ structure.

Claim 6 (Cancelled)

Claim 7 (Currently Amended)

The heat sink device used for ~~said~~ ball grid array package device with ~~said~~ modified embedded heat slug according to Claim 1, further comprising a conductive material located between said first heat dissipating ~~element~~ structure and said ball grid array package device and ~~to adhere~~ said first heat dissipating ~~element and~~ structure being adhered to said ball grid array package device.

Claim 8 (Currently Amended)

The heat sink device used for ~~said~~ ball grid array package device with ~~said~~ modified embedded heat slug according to Claim 1, wherein said at least [[said]] two conductive ~~pillars~~ supports located below said first heat dissipating ~~element~~ structure.

Claim 9 (Currently Amended)

The heat sink device used for ~~said~~ ball grid array package device with ~~said~~ modified embedded heat slug according to Claim 1, further ~~comprises~~ comprising at least two springs put around at least [[said]] two conductive ~~pillars~~ supports.

Claim 10 (Currently Amended)

A heat sink device used for a ~~said ball grid array~~ package device with ~~said~~ modified embedded heat slug, ~~said heat sink device for ball grid array package with modified embedded heat slug comprises~~ comprising:

a heat sink assembly~~, said heat sink assembly~~ having a thermal conductive adhesive tape[[,]] located on [[the]] a backside of a first heat dissipating ~~element~~ structure, and a second heat dissipating ~~element~~ structure located above [[on]] said first heat dissipating ~~element~~ structure;

a printed circuit board having said ~~flip chip ball grid array~~ package device thereon, wherein said ~~flip chip ball grid array~~ package device having a cavity of an embedded heat slug therein; and

a conductive protruding block~~, said conductive protruding block which~~ embedded in said cavity of said ~~ball grid array~~ package device, wherein said first heat dissipating ~~element~~ structure located above [[on]] said ~~ball grid array~~ package device of said printed circuit board, and said conductive protruding block within said cavity of said embedded heat slug ~~contact~~ is contacted with said backside of said first heat dissipating ~~element~~ structure.

Claim 11 (Currently Amended)

The heat sink device used for ~~said ball grid array~~ package device with ~~said~~ modified embedded heat slug according to Claim 10, wherein said first heat dissipating ~~element~~ structure is made by casting.

Claim 12 (Currently Amended)

The heat sink device used for ~~said ball grid array~~ package device with ~~said~~ modified embedded heat slug according to Claim 10, wherein said second heat dissipating ~~element~~ structure is a heat-dissipating fin.

Claim 13 (Currently Amended)

The heat sink device used for ~~said ball grid array~~ package device with ~~said~~ modified embedded heat slug according to Claim 10, further comprising a conductive material located between said first heat dissipating ~~element~~ structure and said ~~ball grid array~~ package device.

Claim 14 (Currently Amended)

The heat sink device used for ~~said ball grid array~~ package device with ~~said~~ modified embedded heat slug according to Claim 10, further comprising a second heat sink assembly located below said ~~ball grid array~~ package device of said printed circuit board.

Claim 15 (Currently Amended)

The heat sink device used for ~~said ball grid array~~ package device with ~~said~~ modified embedded heat slug according to Claim 14, wherein said second heat sink assembly having a protruding [[part]] structure in the ~~central~~ center and at least two ~~openings~~ through holes on the two sides of said second

heat sink assembly.

Claim 16 (Currently Amended)

A heat sink device of ~~ball grid array~~ a package device, ~~said heat sink device of said ball grid array package comprises~~ comprising:

a first heat sink assembly, ~~said first heat sink assembly having a shaping unity fist heat sink element~~ with a conductive protruding block, a second heat dissipating ~~element on~~ structure located below said first heat dissipating ~~element~~ structure, and at least two conductive ~~pillars is~~ supports located below said first heat dissipating structure ~~element~~;

a printed circuit board having a ~~ball grid array~~ package device thereon, ~~wherein said printed circuit board~~ and having at least two through holes thereon; and

a second heat sink assembly, ~~said second heat sink assembly~~ having a protruding [[part]] structure in the ~~central~~ center and at least two ~~openings~~ through holes on the two sides of said second heat sink assembly, wherein said first heat sink assembly used at least [[said]] two conductive ~~pillars~~ supports that passed through at least said two through holes of said printed circuit board, and ~~joined~~ jointed with said two through holes on said two sides of said second heat sink assembly.

Claim 17 (Currently Amended)

The heat sink device of ~~said ball grid array~~ package device according to Claim 16, wherein said

first heat dissipating ~~element~~ structure having said conductive protruding block is made by casting.

Claim 18 (Currently Amended)

The heat sink device of said ~~ball grid array~~ package device according to Claim 16, wherein said second heat dissipating ~~element~~ structure is a heat-dissipating fin.

Claim 19 (Currently Amended)

The heat sink device of said ~~ball grid array~~ package device according to Claim 16, further comprising a conductive material ~~filled~~ full with at least said two through holes of said printed circuit board, ~~thereby at least said two holes~~ to ~~connected~~ connect with said at least said two conductive ~~pillars~~ supports.

Claim 20 (Currently Amended)

The heat sink device of said ~~ball grid array~~ package device according to Claim 16, further comprising at least two springs that put around at least said two conductive ~~pillars~~ supports.